

Remarks

Claims 9-12 and 25 are pending.

Claims 9 and 25 have been rewritten to particularly point out and distinctly claim Applicants' invention.

Claims 10-12 have each been rewritten in independent form, in order to include the limitations of original base Claim 9.

A marked up version of Claims 9-12 and 25 is attached.

A Fee Sheet and duplicate copy thereof accompany this Amendment to cover the fee for two (*i.e.*, 2 = 5 - 3) independent claims in excess of three total independent claims.

REJECTIONS UNDER 35 USC § 103(a)

The Examiner rejects Claims 9 and 25 on the ground of being unpatentable over U.S. Patent No. 6,040,747 (Krasser et al.) in view of U.S. Patent No. 6,307,460 (Yu).

Krasser et al. discloses an overcurrent circuit breaker (Figures 4, 6-8) including a housing 1, fixed contacts 14,15 having respective contact points 16,17, a contact bridge 13 carried by a contact bridge support 20, contact connections 7 (current input) and 8 (current output), and a bimetal 38. The contact bridge support 20 is injection-molded as one-piece from insulating material. See Krasser et al., col. 4, ll. 11-12. The bimetal 38 is bent into a U-shape and points upward (Figures 7 and 8) with a connecting web 56 between two U-shaped legs 57,58. As shown in Figures 4, 6 and 7, the one U-shaped leg 57 is connected to the base element 22 or the pedestal part 76 of the fixed contact 15, which is also assigned to the current output. The other U-shaped leg 58 is welded with its end to the contact connection 8, which is assigned to the current output. Under the effects of an overcurrent, the U-shaped arc or the U-shaped connecting web 56 of the bimetal 38 bends outward (in clockwise direction relative to the places where U-shaped legs 57,58 are clamped in Figure 8, which is away from the contact bridge support 20), in order to release an interlocking cam 37 of the contact bridge support 20 from the detent opening 55 of the bimetal 38. An adjustment screw 63 acts upon the base element 22 of the fixed contact 15 in the current leakage range and, thus, causes the adjustment movement of the bimetal 38.

Yu discloses a power switch device including a switch box 20 housing an inverted U-shaped bimetal plate 40 having one end with two legs and another pushing end 41. First and second terminal plates 25,26 extend from the switch box 20. One of the bimetal legs is connected to the first terminal plate 25. The other bimetal leg is connected to a first end of a conduct plate 60. A first conduct point 261 is connected to the second terminal plate 26. A second conduct point 62 is connected to a second end of the conduct plate 60. When

the electric circuit is overloaded, the pushing end 41 of the bimetal plate 40 is thermally deformed to push hook 582 of engaging member 58 away from the rounded top of block 22.

Claim 9 recites, *inter alia*, a circuit breaker comprising: a housing; a pair of separable contacts mounted in the housing; an operating mechanism for opening and closing the separable contacts; a first terminal electrically interconnected with a first one of the separable contacts; a second terminal electrically connected to a second one of the separable contacts; an electrically conductive support mechanism mounted in the housing; and a bimetal overcurrent assembly responsive to selected conditions of current flowing through the separable contacts for actuating the operating mechanism to trip open the separable contacts, the bimetal overcurrent assembly having first and second legs and a free intermediate section which deflects in response to the selected conditions of current to actuate the operating mechanism, with the first leg engaging and being electrically connected to the support mechanism, with the second leg electrically connected to the first terminal, with the operating mechanism carrying and being electrically connected to the first one of the separable contacts, and with the support mechanism supporting and being electrically connected to the operating mechanism.

It is submitted that Krasser et al., which discloses an insulated injection-molded contact bridge support 20 (which is applied by the Examiner as being an operating mechanism) and a contact bridge 13 (which is applied by the Examiner as being part of separable contacts), teaches away from the refined recital of an operating mechanism carrying and being electrically connected to a first one of separable contacts. Furthermore, it is submitted that Krasser et al., which discloses a bimetal 38 being bent into a U-shape with a connecting web 56 between two U-shaped legs 57,58 (which bimetal 38 having such web 56 is applied by the Examiner as being both a support mechanism and a bimetal), teaches away from the refined recital of a support mechanism *supporting and being electrically connected to* such *operating* mechanism. At best, the detent opening 55 of the bimetal 38 of Krasser et al. (Figure 1) engages the insulated interlocking cam 37 of the insulated injection-molded contact bridge support 20.

The Examiner states in paragraph 2, page 2 of the Office Action that Krasser et al. discloses "an electrically conductive support mechanism [38, figure 4] mounted in the housing" and "a bimetal [56, figure 7]". This statement is respectfully traversed as applied to the refined recital of Claim 9.

As set forth in column 6, lines 11-28 of Krasser et al., the bimetal 38 is bent into a U-shape with a connecting web 56 between two U-shaped legs 57,58. Under the

effects of an overcurrent, the "U-shaped arc or the U-shaped connecting web 56 of the bimetal 38" bends outward in order to release an interlocking cam 37 of the contact bridge support 20 from the detent opening 55 of the bimetal 38. Hence, it is submitted that the reasonable position is that Krasser et al. teaches and suggests a bimetal 38 having a connecting web 56 between two U-shaped legs 57,58. It is submitted that Krasser et al. does not teach or suggest an electrically conductive support mechanism mounted in a housing, with a first leg of a bimetal engaging and being electrically connected to such support mechanism, with an operating mechanism carrying and being electrically connected to a first one of separable contacts, and with such support mechanism supporting and being electrically connected to such operating mechanism.

It is not clear which pair of contacts of Krasser et al. the Examiner construes to be "separable" within the context of Claim 9. The movable contact bridge 13 is separable from the contact points 16,17 of the respective fixed contacts 14,15 of Krasser et al.. Hence, if the Examiner selects either: (1) contact bridge 13 and contact point 16; or (2) contact bridge 13 and contact point 17 as being the recited separable contacts of Claim 9, then, in either case, Krasser et al. does not teach or suggest a first terminal electrically interconnected with a first one of *separable* contacts and a second terminal electrically connected to a second one of such *separable* contacts.

The Examiner states that Yu (Figure 1) discloses a bimetal assembly having a pair of legs wherein one of which is connected to a terminal and the other of which "is connected to a contact support".

It is submitted that Yu, which discloses one bimetal leg connected to a terminal plate 25 and another bimetal leg connected to a first end of a conduct plate 60 functioning as an operating mechanism, adds nothing to Krasser et al. regarding any electrically conductive support mechanism mounted in a housing, with a first leg of a bimetal engaging and being electrically connected to such support mechanism, with an operating mechanism carrying and being electrically connected to a first one of separable contacts, and with such support mechanism *supporting and being electrically connected to* such *operating* mechanism.

Accordingly, it is submitted that Claim 9 patentably distinguishes over the references.

Claim 25 is an independent claim, which recites, *inter alia*, a circuit breaker comprising: a housing; a pair of separable contacts mounted in the housing; an operating mechanism for opening and closing the separable contacts; a first terminal electrically

interconnected with a movable one of the separable contacts; a second terminal electrically connected to a fixed one of the separable contacts; an electrically conductive support mechanism mounted in the housing and supporting the operating mechanism; and a bimetal overcurrent assembly responsive to selected conditions of current flowing through the separable contacts for actuating the operating mechanism to trip open the separable contacts, the bimetal overcurrent assembly having first and second legs and a free intermediate section which deflects in response to the selected conditions of current to actuate the operating mechanism, with the first leg engaging and being electrically connected to the support mechanism, with the second leg electrically connected to the first terminal, with the operating mechanism carrying and being electrically connected to the movable one of said separable contacts, and with the support mechanism being electrically connected to the operating mechanism.

It is submitted that Krasser et al., which discloses an insulated injection-molded contact bridge support 20 (which is applied by the Examiner as being an operating mechanism) and a contact bridge 13 (which is applied by the Examiner as being part of separable contacts), teaches away from the refined recital of an operating mechanism carrying and being electrically connected to a movable one of separable contacts. Furthermore, it is submitted that Krasser et al., which discloses a bimetal 38 being bent into a U-shape with a connecting web 56 between two U-shaped legs 57,58 (which bimetal 38 having such web 56 is applied by the Examiner as being both a support mechanism and a bimetal), teaches away from the refined recital of a support mechanism *supporting and being electrically connected to* such *operating* mechanism. At best, the detent opening 55 of the bimetal 38 of Krasser et al. (Figure 1) engages the insulated interlocking cam 37 of the insulated injection-molded contact bridge support 20.

The Examiner states in paragraph 2, page 2 of the Office Action that Krasser et al. discloses "an electrically conductive support mechanism [38, figure 4] mounted in the housing" and "a bimetal [56, figure 7]". This statement is respectfully traversed as applied to the refined recital of Claim 25.

As set forth in column 6, lines 11-28 of Krasser et al., the bimetal 38 is bent into a U-shape with a connecting web 56 between two U-shaped legs 57,58. Under the effects of an overcurrent, the "U-shaped arc or the U-shaped connecting web 56 of the bimetal 38" bends outward in order to release an interlocking cam 37 of the contact bridge support 20 from the detent opening 55 of the bimetal 38. Hence, it is submitted that the reasonable position is that Krasser et al. teaches and suggests a bimetal 38 having a

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connecting web 56 between two U-shaped legs 57,58. It is submitted that Krasser et al. does not teach or suggest an electrically conductive support mechanism mounted in a housing and supporting an operating mechanism, with a first leg of a bimetal engaging and being electrically connected to such support mechanism, with such operating mechanism carrying and being electrically connected to a movable one of separable contacts, and with such support mechanism being electrically connected to such operating mechanism.

It is not clear which pair of contacts of Krasser et al. the Examiner construes to be "separable" within the context of Claim 25. The movable contact bridge 13 is separable from the contact points 16,17 of the respective fixed contacts 14,15 of Krasser et al.. Hence, if the Examiner selects either: (1) movable contact bridge 13 and fixed contact point 16; or (2) movable contact bridge 13 and fixed contact point 17 as being the recited separable contacts of Claim 25, then, in either case, Krasser et al. does not teach or suggest a first terminal electrically interconnected with a movable one of separable contacts and a second terminal electrically connected to a fixed one of such separable contacts.

The Examiner states that Yu (Figure 1) discloses a bimetal assembly having a pair of legs wherein one of which is connected to a terminal and the other of which "is connected to a contact support".

It is submitted that Yu, which discloses one bimetal leg connected to a terminal plate 25 and another bimetal leg connected to a first end of a conduct plate 60 functioning as an operating mechanism, adds nothing to Krasser et al. regarding any electrically conductive support mechanism mounted in a housing *and supporting* an *operating* mechanism, with a first leg of a bimetal engaging and being electrically connected to such support mechanism, with such operating mechanism carrying and being electrically connected to a movable one of separable contacts, and with such *support mechanism* being *electrically connected to* such *operating* mechanism.

Therefore, it is submitted that Claim 25 patentably distinguishes over the references.

#### **OBJECTIONS TO THE CLAIMS / ALLOWABLE SUBJECT MATTER**

The Examiner objected to Claims 10-12 as depending from a rejected base claim, but states that those claims would be allowable if rewritten to include all of the limitations of the base claim.

Each of Claims 10-12 has been rewritten in independent form, in order to include the limitations of original base Claim 9. It is submitted, therefore, that Claims 10-12, as now present d, are in condition for allowance.

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Summary

In summary, it is submitted that Claims 9-12 and 25 are allowable over the references of record.

Reconsideration and early allowance are requested.

Respectfully submitted,



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MARKED UP CLAIMS UNDER 37 CFR 1.121(c)(1)(ii)

9. (Amended) A circuit breaker comprising:

a housing;  
a pair of separable contacts mounted in said housing;  
an operating mechanism for opening and closing said separable contacts;  
a first terminal electrically interconnected with a first one of said separable contacts;  
a second terminal electrically connected to a second one of said separable contacts;  
an electrically conductive support mechanism mounted in said housing; and

a bimetal overcurrent assembly responsive to selected conditions of current flowing through said separable contacts for actuating said operating mechanism to trip open said separable contacts, said bimetal overcurrent assembly having first and second legs and a free intermediate section which deflects in response to said selected conditions of current to actuate said operating mechanism, with the first leg engaging and being electrically connected to said support mechanism, with the second leg electrically connected to said first terminal, with said operating mechanism carrying and being electrically connected to said first one of said separable contacts, and with said support mechanism supporting and being electrically connected to said operating mechanism [interconnected with said first one of said separable contacts].

10. (Amended) A circuit breaker comprising:

a housing;  
a pair of separable contacts mounted in said housing;  
an operating mechanism for opening and closing said separable contacts;  
a first terminal electrically interconnected with a first one of said separable contacts;  
a second terminal electrically connected to a second one of said separable contacts;

an electrically conductive support mechanism mounted in said housing; and

a bimetal overcurrent assembly responsive to selected conditions of current flowing through said separable contacts for actuating said operating mechanism to trip open said separable contacts, said bimetal overcurrent assembly having first and second legs and a free intermediate section which deflects in response to said selected conditions of current to actuate said operating mechanism, with the first leg engaging and being electrically connected to said support mechanism, with the second leg electrically connected to said first terminal, and with said support mechanism electrically interconnected with said first one of said separable contacts. [The circuit breaker of Claim 9 wherein] said free intermediate section is a U-shaped section electrically connected in series between said first leg and said second leg.

11. (Amended) A circuit breaker comprising:

a housing;

a pair of separable contacts mounted in said housing;

an operating mechanism for opening and closing said separable contacts. [The circuit breaker of Claim 9 wherein] said operating mechanism includes a movable contact arm carrying and electrically connected to a [the] first one of said separable contacts;

a first terminal electrically interconnected with the first one of said separable contacts;

a second terminal electrically connected to a second one of said separable contacts;

an electrically conductive support mechanism mounted in said housing. [and wherein] said support mechanism includes a flexible conductor having two ends, with the first end of said flexible conductor electrically connected to said support mechanism, and with the second end of said flexible conductor electrically connected to the movable contact arm; and

a bimetal overcurrent assembly responsive to selected conditions of current flowing through said separable contacts for actuating said operating mechanism to trip open said separable contacts, said bimetal overcurrent assembly having first and second legs and a free intermediate section which deflects in response to said selected conditions of current to actuate said operating mechanism, with the first leg engaging and being electrically

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connected to said support mechanism, with the second leg electrically connected to said first terminal, and with said support mechanism electrically interconnected with said first one of said separable contacts.

12. (Amended) A circuit breaker comprising:

a housing;

a pair of separable contacts mounted in said housing;

an operating mechanism for opening and closing said separable contacts;

a first terminal electrically interconnected with a first one of said separable contacts;

a second terminal electrically connected to a second one of said separable contacts;

an electrically conductive support mechanism [The circuit breaker of Claim 9 wherein said support mechanism includes a mechanism] plate [mounting] mounted in said housing]; and wherein] said operating mechanism is assembled to and supported by said support mechanism plate; and

a bimetal overcurrent assembly responsive to selected conditions of current flowing through said separable contacts for actuating said operating mechanism to trip open said separable contacts, said bimetal overcurrent assembly having first and second legs and a free intermediate section which deflects in response to said selected conditions of current to actuate said operating mechanism, with the first leg engaging and being electrically connected to said support mechanism plate, with the second leg electrically connected to said first terminal, and with said support mechanism plate electrically interconnected with said first one of said separable contacts.

25. (Amended) A circuit breaker comprising:

a housing;

a pair of separable contacts mounted in said housing;

an operating mechanism for opening and closing said separable contacts;

a first terminal electrically interconnected with a movable [first] one of said separable contacts;

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a second terminal electrically connected to a fixed [second] one of said separable contacts;

an electrically conductive support mechanism mounted in said housing and supporting said operating mechanism; and

a bimetal overcurrent assembly responsive to selected conditions of current flowing through said separable contacts for actuating said operating mechanism to trip open said separable contacts, said bimetal overcurrent assembly having first and second legs and a free intermediate section which deflects in response to said selected conditions of current to actuate said operating mechanism, with the first leg engaging and being electrically connected to said support mechanism, with the second leg electrically connected to said first terminal, with said operating mechanism carrying and being electrically connected to said movable one of said separable contacts, and with said support mechanism being electrically connected to said operating mechanism [interconnected with said first one of said separable contacts].